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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
JARRETT, SCOTT L	
ART UNIT	**PAPER NUMBER**
3623	

DATE MAILED: 07/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/788,470	REINSMA ET AL.	
	Examiner	Art Unit	
	Scott L. Jarrett	3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-92* is/are pending in the application.

4a) Of the above claim(s) *44-79 and 90-92* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-43 and 80-89* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Non-Final Office Action is in response to Applicant's amendment filed March 30, 2006. Applicant's amendment amended Claims 16, 34, 39, 83, 87 and 89. Currently Claims 1-43 and 80-89 are pending, claims 44-79 and 90-92 being previously withdrawn.

Response to Amendment

2. The Objection to the Title in the previous office action is withdrawn in response to the Applicant's amendment to the Title.

The 35 U.S.C. 112 (1) rejection of Claim 89 is withdrawn in response to Applicant's amendment to Claim 89.

The 35 U.S.C. 112(2) rejection of Claim 16 is withdrawn in response to Applicant's amendment to Claim 16.

Response to Arguments

3. Applicant's arguments, see Paragraphs 1-2, Page 55; Paragraphs 1-2, Page 56; filed March 30, 2006, with respect to the rejection of claims 27-28 under 35 U.S.C. 103(a) as being obvious over Papamichael K. et al., Building Design Advisor (BDA) in view of MECcheck Software User's Guide Version 3.0 (April 2000, MEC) and further in view of Jung, Pyoung-Young, U.S. Patent Publication No. 2001/0037190 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Papamichael K. et al., Building Design Advisor (BDA) in view of MECcheck Software User's Guide Version 3.0 (April 2000, MEC) and further in view of Jung, Pyoung-Young, U.S. Patent No. 6,996,503.

4. Applicant's arguments, see Paragraphs 1-2, Page 61, filed March 30, 2006, with respect to the rejection of claim 34 under 35 U.S.C. 103(a) as being obvious over Building Design Advisor (BDA) in view of MECcheck Software User's Guide Version 3.0 (April 2000) in view of Jung, Pyoung-Young, U.S. Patent Publication No. 2001/0037190 and further in view of Wares, U.S. Patent Publication No. 2001/0044768 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Building Design Advisor (BDA) in view of Jung, Pyoung-Young, U.S. Patent No. 6,996,503.

5. Applicant's arguments, see Paragraph 2, Page 51; Paragraph 3, Page 62, with respect to the rejection of claims 36-41, 43 and 83 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of

- Claims 36-38, 43 and 83: Building Design Advisor (BDA) in view of Jung, Pyoung-Young, U.S. Patent No. 6,996,503 and further in view of MECcheck Software User's Guide Version 3.0 (April 2000); and

- Claims 39-41: Building Design Advisor (BDA) in view of Jung, Pyoung-Young, U.S. Patent No. 6,996,503 in view of MECcheck Software User's Guide Version 3.0 (April 2000) and further in view of Bosch, Maria, An expert system for cost-effective energy efficiency calculations (1996).

6. Applicant's arguments filed March 30, 2006 with respect to Claims 1-26, 29-33, 35-43, 80-82 and 84-89 have been fully considered but they are not persuasive. Specifically Applicant's argue:

- that the 35 U.S.C. 102(b) rejection of Claims 1-2, 7, 13-14, 17-20, 25, 30-31, 33, 42-43, 82, 84-85 and 89 as being anticipated by Building Design Advisor (BDA) is improper due to the citing of multiple references (no single primary reference; Remarks: Paragraphs 1-3, Page 26, Paragraph 1, Page 27);
- that the prior art of record fails to teach or suggest either singly or in combination each and every element of the claimed invention, specifically failing to teach or suggest:

- automatically selecting a set of items that satisfy a set of values (Remarks: Last Paragraph, Page 28; Paragraph 1, Page 32; Paragraph 3, Page 37; Paragraph 1, Page 43; Paragraph, 2, Page 45; Paragraphs 2-3, Page 53; Paragraph 2, Page 57);
- selecting and displaying a set of items based on the calculated values and/or code for selecting and displaying a set of items based on the calculated values (Remarks: Paragraph 1, Page 29; Last Paragraph, Page 35; Paragraph 2, Page 41; Paragraph 1, Page 43; Paragraph 1, Page 53; Paragraph 1, Page 62);
- that the items are stored in at least one database and each item has an associated first item value and second item value (Remarks: Paragraph 2, Page 30; Paragraph 3, Page 36; Paragraph 3, Page 37; Last Paragraph, Page 41; Paragraph 2, Page 50);

- that no support was given for the 35 U.S.C. 102(b) rejection of Claim 33 (Paragraphs 1-2, Page 31; Last Paragraph, Page 36; Paragraph 2, Page 42);
- that the 35 U.S.C. 102(b) rejection of Claim 43 is improper due to its dependence on Claim 36 which was rejected under 35 U.S.C. 103(a) as being obvious over Building Design Advisor (BDA) in view of MECcheck Software User's Guide Version 3.0 (Remarks: Last Paragraph, Page 32; Paragraph 2, Page 38; Paragraph 3, Page 43; and

- that no support was provided for the 35 U.S.C 103(a) rejection of Claim 80 specifically Claim 80 was rejected in sections 11, 12 and 15 of the previous office action (Last Paragraph, Page 60).

Additionally Applicant's requested support for some of the officially noticed facts recited in the previous office action, specifically requesting support for the following:

- providing of energy budgets for projects (Remarks: Paragraphs 2-3, Page 47; Paragraph 1, Page 48);
- representing project glazing values as percentages (glazing percentages; Remarks: Paragraph 2, Page 49; Last Paragraph, Page 51);
- providing schedule and cost information as part of a proposal (Remarks: Last Paragraph, Page 58); and
- determining the cost of delays (Remarks: Last Paragraph, Page 51).

7. In response to Applicant's argument that the 35 U.S.C. 102(b) is improper due the application of multiple references the examiner respectfully disagrees. A 35 U.S.C. 102 rejection over multiple references has been held to be proper when the extra references are cited to (see MPEP 2131.01):

(A) Prove the primary reference contains an "enabled disclosure;"

(B) Explain the meaning of a term used in the primary reference; or

(C) Show that a characteristic not disclosed in the reference is inherent.

In the previous office action Claims 1-2, 7, 13-14, 17-20, 25, 30-31, 33, 42-43, 82, 84-85 and 89 were rejected as being anticipated by the Building Design Advisor (BDA) system and method, a single prior art software system and method for selecting a set of project items (building components, materials, equipment, etc.) that meet project criteria, wherein each of the cited *supporting* references *expressly* teach features, capabilities and/or characteristics **inherent** in the Building Design Advisor software product (system/method).

Further it is noted that the cited supporting references:

- each contain at least one common author Papamichael K. (Reference A: Papamichael, Chauvet; Reference B: Papamichael, Chauvet, LaPorta, Dandridge; Reference C: Papamichael);
- Reference A is cited in the bibliography of Reference B ([7] Page 10);
- each of the cited references and the research and development disclosed was funded by the California Institute for Energy Efficiency (CIEE); and

- and all of the cited references (i.e. the BDA system/method) were written at the Building Technologies Program, Environmental Energy Technologies Division, Ernest Orlando Lawrence Berkley National Laboratory in Berkeley California.

In response to the Applicant's argument that the prior art of record fails to teach or suggest each and every feature of the claimed invention the examiner respectfully disagrees.

In response to the Applicant's argument that the prior art of record fails to teach or suggest *automatically selecting* a set of items that satisfy a set of values the examiner respectfully disagrees.

Initially it is noted that the features upon which applicant relies (i.e., *automatically* selecting a set of items that satisfy a set of values) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

However, **if** the Applicant's *were to amend* the claim to positively recite that the computer system, autonomously, *automatically selects* a set of items that satisfy a set of values the examiner notes that it is well settled that it is not "invention" to broadly provide a mechanical or automatic means to replace manual activity which has accomplished the same result. In re Venner, 120 USPQ 192.

Additional support that it is old and well known to automate manual activities, specifically to automate the selection of a set of items that satisfy a set of values (e.g. automatically selection a set of items that satisfy a set of values by selecting windows, insulation, HVAC or other structural components of a building) can be found in *at least* the following references:

- Building Design Advisor (BDA): "For every object created in the SGE, the BDA activates a default Value Selector (DVS) mechanism that selects smart default values from a prototypes database for all non-geometric parameters...", reference A: Abstract; "DVS selects a default exterior wall segment type by first computing the ASHRAE recommended minimal thermal resistance based on degree-days and then selecting a wall type from the library or walls that best matches the recommended value.", Paragraph 2, Page 12; reference B: "Advances in computer applications over the last few decades have resulted in the gradual replacement of manual modeling with computer-simulation models.", Column 2, Paragraph 3, Page 1; Column 2, Paragraph 3, Page 2; reference C: Column 2, Paragraph 2, Page 4; Column 2, Paragraph 2, Page 5;
- Bosch, Maria, An expert system for cost-effective energy efficiency calculations (1996): Column 1, Paragraph 2, Page 23; Column 1, Paragraphs 2-3, Page 24;

- New software tool identifies green design strategies (1999): entire article;
- Rosenthal et al., U.S. Patent No. 4,181,954: Column 2, Lines 29-48;
- Pray et al., U.S. Patent No. 4,885,694: Column 1, Lines 7-25; Column 13, Lines 65-68;
- Williams, David, U.S. Patent No. 5,517,428: Column 1, Lines 10-18;
- Kurtzberg et al., U.S. Patent No. 5,822,719: Abstract; Column 1, Lines 10-14; Column 2, Steps 1-7;
- Ray, Charles, U.S. Patent No. 6,167,388: Column 1, Lines 5-20; Column 2, Lines 10-15; and
- Rappaport et al., U.S. Patent No. 7,055,107: Column 1, Lines 38-49; Column 6, Lines 3-30.

In response to the Applicant's argument that the prior art of record fails to teach or suggest selecting and displaying a set of items based on the calculated values and/or code for selecting and displaying a set of items based on the calculated values the and/or that no support was provided for the 35 U.S.C. 102(b) rejection of claim 33 the examiner respectfully disagrees.

Building Design Advisor teaches a computer-implemented system and method of selecting items for a project within a criteria comprising:

- selecting a set of items based on calculated set of values (Decision Desktop, multi-criterion decision making; reference A: Last Paragraph, Page 2; "The Decision

Desktop", Pages 7-8; Last Paragraph, Page 10; Paragraph 1, Page 11; "DVS selects a default exterior wall segment type by first computing the ASHRAE recommended minimal thermal resistance based on degree-days and then selecting a wall type from the library or walls that best matches the recommended value.", Paragraph 2, Page 12; Figure 3; reference B: Column 2, Page 5; "The building model", Pages 9-10; Column 2, Paragraph 2, Page 11; reference C: Default Value Selection, Column 2, Paragraphs 1-2, Page 8; Column 2, Paragraph 2, Page 14);

- displaying to a user the selected items that meet project criteria (items that meet performance criteria, etc.; reference A: "review results from computations and data queries in a variety of graphical displays", Bullet 7, Page 3; The Graphical User Interface, Page 6; Last Paragraph, Page 10; Paragraph 1, Page 11; Figures 3, 8; reference B: Column 2, Page 4; Figures 4-6; reference C: User Interface, Pages 8-9; Figures 7, 10-12); and

- code (software, routine, subsystem, component, object, graphical user interface, software environment, etc.) for selecting and displaying a set of items based on the calculated set of values (using a computer to select, calculate and display; Decision Desktop, Default Value Selector, Graphical User Interface, Schematic Graphic Editor, etc.; reference A: The Graphical User Interface, Page 6; The Decision Desktop, Pages 7-8; "the user can request the computation and display of the values for all checked parameters by clicking on the Calculate button found in the main BDA window.", Last Paragraph, Page 10; Paragraph 1, Page 11; Figures 3, 5-6; reference C: Information Technologies, Pages 4-5; Figure 2).

In response to Applicant's argument that the prior art of record fails to teach or suggest either singly or in combination that the items are stored in at least one database and each item has an associated first item value and second item value the examiner respectfully disagrees.

Building Design Advisor teaches a computer-implemented method and system of selecting items within project criteria wherein the items are stored in at least one database and each item has an associated first item value (parameters, attribute, etc.) and a second item value (project database, project design database, schema database, item objects having parameters, relations and methods, meta-schema, etc.; reference A: "The integrated data model", Pages 4-5; Column 1, Paragraph 3, Page 6; "Interfaces to Databases", Figure 1; reference B: "The schema database" "The project database", Page 6; Column 1, Paragraph 1, Page 12; Figures 2-3; reference C: Column 2, Paragraph 1, Page 5; Figure 2).

In response to Applicant's request for support for some of the officially noticed facts in the previous office action the following references are provided.

Support for the officially noticed fact that providing budgets for projects, such as energy budgets, wherein the budgets provide a mechanism for defining design constraints and/or considerations for the project can be found in at least the following reference Carroll, William Leslie, Energy and Economic Optimization of Conduction-Dominated Buildings (1986):

- "In performance standards, only the maximum allowable energy consumption ("energy budget") is specified (usually based on building size, type, climate, etc.) without specifying in detail how an individual building must be designed to meet this requirement. Thus any building design that can be shown to comply with the energy budget requirement is acceptable under the standard...Thus the setting of optimal budget levels for performance standards is an important economic and policy issue.", Paragraph 1, Page 2;

- "Energy budget levels in proposed federal building energy performance standards were developed by enumerative determination of life-cycle cost...", Paragraph 1, Page 8; and

- Abstract; Section 2.6.2, Page 31; Section 5.2.4, Page 129.

Support for the officially noticed fact that representing values using percentages is old and very well known, specifically it is old and well known to represent project

(building, etc.) glazing values using glazing area percentages wherein such percentages represent the portion (fraction, percent) of a structure having windows, doors or other fenestration elements can be found in at least the following reference RESFEN 3.1 A PC Program for Calculating the Heating and Cooling Energy Use of Windows in Residential Buildings (1999)

- "...it is clear that a larger glazing percentage on the south orientation makes a significant difference in heating savings....you can use RESFEN to determine the optimal glazing distribution as well as glazing type by orientation for a new building.", Last Paragraph, Page 5-4; Figure 5-5; and
- "Another way to use RESFEN is to evaluate different building designs in terms of glazing percentages on different orientations." Paragraph 1, Page 5-10; Figures 5-15 and 5-16.

Support for the officially noticed fact that providing schedule and cost information as part of a proposal (contract, agreement, etc.) wherein proposals/bids include/provide information that is relevant and used in evaluating projects is old and very well known can be found in at least the following reference: Pray et al. U.S. Patent No. 4,885,694 ("...substantially automates the building control system design function and includes estimating, preparing a proposal to a prospective customer, creating a job file, drafting, creating a bill of materials, labor scheduling, communications, ordering and other administrative functions.", Column 2, Lines 46-68; Column 16, Lines 46-64; Figure 1).

Support for the officially noticed fact that determining the cost of delays is old and very well known in construction project management for providing project managers information related to the status of the project and/or the impact of delays and other events on things such as the project budget/schedule can be found in at least the following reference Primavera Project Planner – Planning and Control Guide Version 3.0 (1999): Paragraph 1, Page 17; Pages 32, 41, 72, 194, 198, 215).

Additionally the pages of Papamichael K. et al., Product modeling for computer-aided decision making (1999; reference B) have been re-numbered in order to correct the inconsistent numbering noted by Applicant's.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-2, 7, 13-14, 17-18, 25, 30-31, 33, 42, 82, 84-85 and 89 are rejected under 35 U.S.C. 102(b) as being anticipated by the Building Design Advisor (BDA) software product (computer-implemented method and system) developed by Lawrence Berkeley National Laboratory University of California, Berkeley features, capabilities and/or *characteristics inherent* in the BDA software product being disclosed in at least the following supporting references:

I. Papamichael K. et al., Building Design Advisor: automated integration of multiple simulation tools (1997), herein after reference A;

II. Papamichael K. et al., Product modeling for computer-aided decision making (1999), herein after reference B; and

III. Papamichael K., Application of information technologies in building design decisions (1999), herein after reference C.

Regarding Claim 1 BDA teaches a method and system for selecting items (components, systems, products, materials, etc.) to be used in the construction and/or retrofit of a building (structure, office, residence, project, etc.) wherein the items are

selected based on the iterative prediction and evaluation of a plurality of projects/structures (designs) performance (energy, economics, cost, environmental impact, etc.) using multiple criteria (values, parameters, etc.; reference A: Abstract; Figures 3, 5, 8; reference B: Column 1, Paragraphs 1-2, Page 1; Column 2, Paragraph 4, Page 2; Figure 1; reference C: "The main objective of the Building Design Advisor (BDA) project is to develop a computer-based tool that allows building decision-makers to quickly and easily integrate energy considerations into decision making throughout the early phases of building design.", Column 2, Paragraph 1, Page 3; Figures 1-2; Page 14).

More specifically BDA teaches computer-implemented method of selecting items (components, materials, elements, etc.) for a project (effort, initiative, building, etc.) within a criteria (parameter, value, threshold, energy, economics, comfort, aesthetics, etc.) comprising:

- inputting (entering, submitting, providing, etc.) project information including project criteria (schematic design editor, building browser, prototype database, CAD files, building model, etc.; reference A: Abstract; Pages 3, 6, 11; Figures 1, 5-8; reference B: User Interface, Pages 8-9; Column 2, Last Paragraph, Page 9; Figures 7, 8, 12);

- determining (selecting, calculating, estimating, etc.) with a computer sets of items (components, elements, materials, systems, equipment, etc.) based on the project information that meet the project criteria (reference A: Abstract; ; "the user can request the computation and display of the values for all checked parameters by clicking on the

Calculate button found in the main BDA window.", Last Paragraph, Page 10; Paragraph 1, Page 11; Figures 3, 5-6; Last Paragraph, Page 2; "The Decision Desktop", Pages 7-8; Last Paragraph, Page 10; Paragraph 1, Page 11; "DVS selects a default exterior wall segment type by first computing the ASHRAE recommended minimal thermal resistance based on degree-days and then selecting a wall type from the library or walls that best matches the recommended value.", Paragraph 2, Page 12; Figure 3; reference B: Column 2, Page 5; "The building model", Pages 9-10; Column 2, Paragraph 2, Page 11; Figures 1-3; reference C: Column 2, Paragraph 4, Page 1; Column 1, Paragraph 1, Page 2; Figure 1; Decision Desktop, multi-criterion decision making; Default Value Selection, Column 2, Paragraphs 1-2, Page 8; Column 2, Paragraph 2, Page 14);

- calculating (simulating, predicting, estimating, evaluating, modeling, etc.) for each set of items two or more values (first, second, total first/second value, attributes, parameters, cost, energy usage, comfort, performance, etc.; reference A: Page 3; Last Paragraph, Page 10; Paragraph 1, Page 11; Figures 3-4; reference B: Page 1; Column 1, Paragraph 1, Page 8; reference C: Column 2, Paragraph 1, Page 14);

- selecting (choosing, design selection, etc.) a set of items based on the one or more calculated values (performance, economics, decision desktop; reference A: Abstract; Figure 3; reference C: Column 2, Paragraph 1, Page 3; Figures 1-2; Decision Desktop, multi-criterion decision making; reference A: Last Paragraph, Page 2; "The Decision Desktop", Pages 7-8; Last Paragraph, Page 10; Paragraph 1, Page 11; "DVS selects a default exterior wall segment type by first computing the ASHRAE recommended minimal thermal resistance based on degree-days and then selecting a

wall type from the library or walls that best matches the recommended value.", Paragraph 2, Page 12; Figure 3; reference B: Column 2, Page 5; "The building model", Pages 9-10; Column 2, Paragraph 2, Page 11; reference C: Default Value Selection, Column 2, Paragraphs 1-2, Page 8; Column 2, Paragraph 2, Page 14); and

- displaying to a user the selected set of items that meet the project criteria (building browser, decision desktop; decision desktop, building browser, etc.: reference A: Abstract; "Graphical User Interface", Page 6; Figures 1, 3-5; reference C: "User Interface", Pages 8-9; Figures 10-11; reference A: "review results from computations and data queries in a variety of graphical displays", Last Bullet, Page 3; The Graphical User Interface, Page 6; Last Paragraph, Page 10; Paragraph 1, Page 11; Figures 3, 8; reference B: Column 2, Page 4; Figures 4-6; reference C: User Interface, Pages 8-9; Figures 7, 10-12).

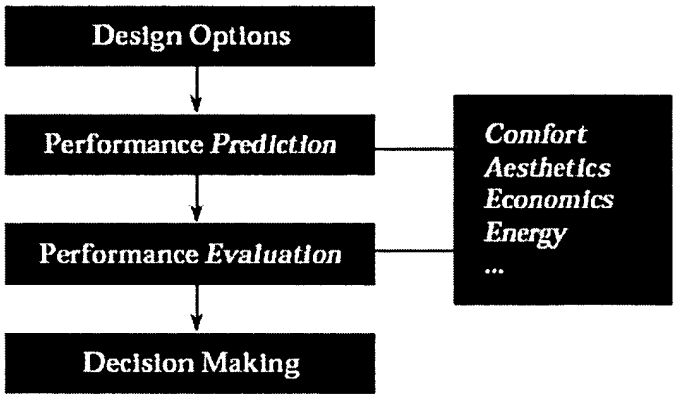

Figure 1. Building design decisions require performance prediction and evaluation with respect to multiple performance considerations.

Figure 1: reference C: Figure 1

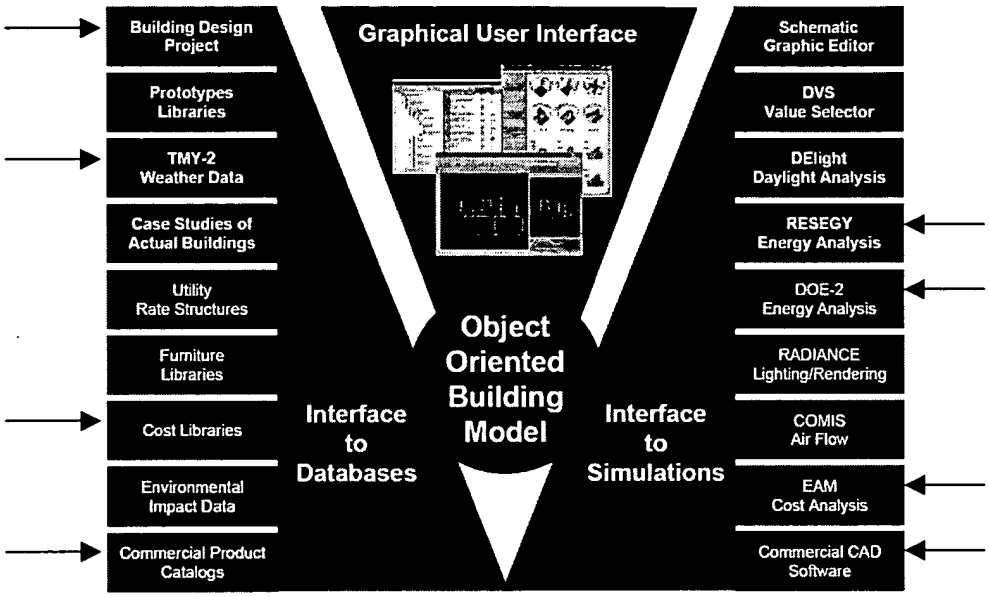

Figure 2. The Building Design Advisor is composed of a central data model that is linked to a graphical user interface and multiple simulation tools and databases.

Figure 2: reference C: Figure 2 (emphasis added)

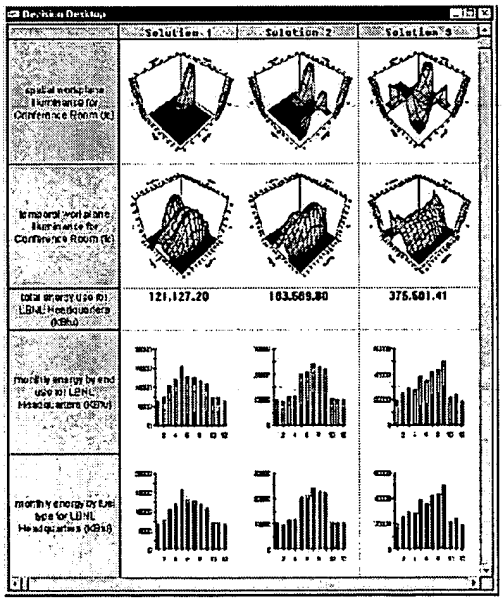

Figure 3. The Decision Desktop allows the user to compare multiple alternative designs with respect to any number of input and output parameters addressed by the simulation tools linked to the BDA.

Figure 3: reference A: Figure 3

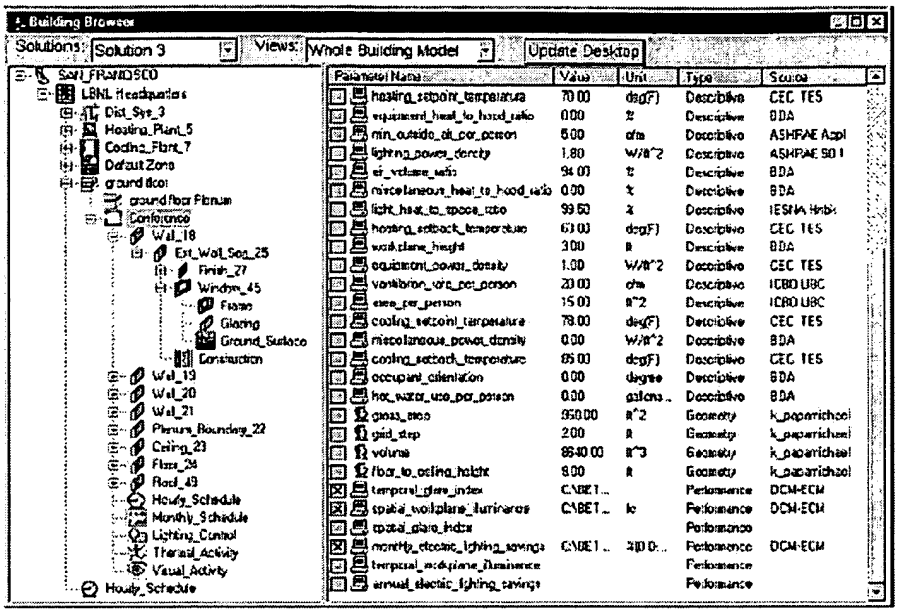

Figure 5. The Building Browser allows the user to quickly navigate through the object-based representation of the building and its context, and select any number of input and output parameters for display in the Decision Desktop.

Figure 4: reference A: Figure 5

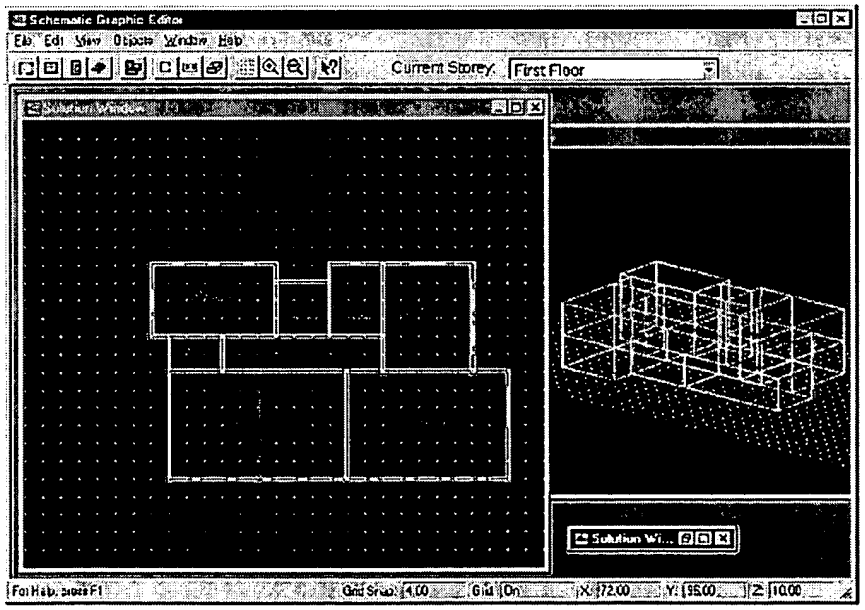

Figure 8. The Schematic Graphic Editor allows the user to draw and modify the geometry of building objects, and supports the display of multiple design alternatives, in their own windows.

Figure 5: reference A: Figure 8

Regarding Claim 2 BDA teaches a system and method of selecting items for a project wherein the items are stored in at least one database and each item has an associated first item value and second item value (project database, project design database, schema database, item objects having parameters, relations and methods, meta-schema, etc.; reference A: "The integrated data model", Pages 4-5; Paragraph 1, page 8; "Interfaces to Databases", Figure 1; reference B: "The schema database" "The project database", Page 6; Column 1, Paragraph 1, Page 12; Figures 2-3; reference C: Column 2, Paragraph 1, Page 5; Figure 2; reference B: Column 2, Page 2; Figure 2; reference C: Column 2, Paragraph 1, Page 5).

Regarding Claim 7 BDA teaches a system and method of selecting items for a project wherein at least one database further comprises a plurality of project values and associated item values (project database, prototypes database, cost database/libraries, etc.; reference A: "The integrated data model", Pages 4-5; Paragraph 1, Page 8; "Interfaces to Databases", Figure 1; reference B: "The schema database" "The project database", Page 6; Column 1, Paragraph 1, Page 12; Figures 2-3; reference B: Column 2, Page 2; Figure 2; reference C: Column 2, Paragraph 1, Page 5).

Regarding Claim 13 BDA teaches a system and method of selecting items for a project wherein the project value is an item cost value (parameter, cost libraries; reference A: Abstract; Paragraph 2, Page 3; reference C: Column 1, Paragraph 2,

Page 1; Column 1 Paragraph 1, Page 2; Figure 2).

Regarding Claim 14 BDA teaches a system and method of selecting items for a project wherein the criteria is based on the project information (reference A: Abstract; reference B: Figures 1-3; reference C: Column 2, Paragraph 4, Page 1; Column 1, Paragraph 1, Page 2; Figure 1).

Regarding Claims 17-18 BDA teaches a system and method of selecting items for a project wherein the project information comprises structural information including walls, ceilings, floors, doors, glazing, slab perimeter *or* crawl space (schematic graphic editor, building browser; reference A: Pages 9-12; Figures 5, 8; reference B: the building model, Page 9; Boundaries and Boundary Segments, Pages 12-13; Figures 4, 7-8; reference C: Pages 9-12; Figures 7-12).

Regarding Claim 25 BDA teaches a system and method of selecting items for a project wherein each item (component, element, materials, system, equipment, etc.) is either a type of building material *or* a type of building system (reference A: Abstract; Pages 6, 9; Figures 1-6; reference B: Page 4; Figure 2; reference C: Column 2, Page 3; The Schematic Graphic Editor, Pages 9-10; Figure 12; Column 2, Page 13).

Regarding Claims 30-31 BDA teaches that the system and method for selecting items for a project further comprises updating the item values (first, second, etc.) and

storing (sending) a document (information, data, etc.) containing updated item values to a server/database/subsystem (schema database, project database, prototypes database; reference A: "The integrated data model", Pages 4-5; Paragraph 1, Page 8; "Interfaces to Databases", Figure 1; reference B: "The schema database" "The project database", Page 6; Column 1, Paragraph 1, Page 12; Figures 2-3; reference B: Page 4; Figure 2).

Further regarding Claim 31, the method as claimed is merely configured to update a database/server (system) however the system does not actually perform the update. For the purposes of examination examiner assumes the applicant will amend the claim to recite that method actually updates the database/server (system) with the updated item values.

Regarding Claim 33 BDA teaches a system for selecting a set of items that meet a given criteria when included within a project, the system comprising:

- a central computer having a processing and an input device for receiving information on a project (reference A: Paragraph 3, page 14; reference B: Figures 4-6; reference C: Information Technologies, Pages 4-5; Column 2, Paragraph 2, Page 5);

- at least one database having a list of items that may be used in constructing (assembling, building, modeling, simulating, etc.) the project and a first value for each of the items (project database, project design database, schema database, item objects having parameters, relations and methods, meta-schema, etc.; reference A: "The

integrated data model", Pages 4-5; Paragraph 1, page 8; "Interfaces to Databases", Figure 1; reference B: "The schema database" "The project database", Page 6; Column 1, Paragraph 1, Page 12; Figures 2-3; reference C: Column 2, Paragraph 1, Page 5; Figure 2; reference B: Column 2, Page 2; Figure 2; reference C: Column 2, Paragraph 1, Page 5);

- code (module, program, routing, object, etc.) for determining sets of the items that *may be* used in constructing the project (Decision Desktop, multi-criterion decision making; reference A: Last Paragraph, Page 2; "The Decision Desktop", Pages 7-8; Last Paragraph, Page 10; Paragraph 1, Page 11; "DVS selects a default exterior wall segment type by first computing the ASHRAE recommended minimal thermal resistance based on degree-days and then selecting a wall type from the library or walls that best matches the recommended value.", Paragraph 2, Page 12; Figure 3; reference B: Column 2, Page 5; "The building model", Pages 9-10; Column 2, Paragraph 2, Page 11; reference C: Default Value Selection, Column 2, Paragraphs 1-2, Page 8; Column 2, Paragraph 2, Page 14);

- code for calculating a total first values for each set of items (reference A: Page 3; The Decision Desktop, Pages 7-8; "the user can request the computation and display of the values for all checked parameters by clicking on the Calculate button found in the main BDA window.", Last Paragraph, Page 10; Paragraph 1, Page 11; Figures 3, 5-6; reference B: Page 1; Column 1, Paragraph 1, Page 8; reference C: Information Technologies, Pages 4-5; Column 2, Paragraph 1, Page 14; Figure 2);

- code for selecting a set of items based on the calculated total first values (Decision Desktop, multi-criterion decision making; reference A: Last Paragraph, Page 2; "The Decision Desktop", Pages 7-8; Last Paragraph, Page 10; Paragraph 1, Page 11; Paragraph 2, Page 12; Figure 3; reference B: Column 2, Page 5; "The building model", Pages 9-10; Column 2, Paragraph 2, Page 11; reference C: Default Value Selection, Column 2, Paragraph 1, Page 3; Column 2, Paragraphs 1-2, Page 8; Column 2, Paragraph 2, Page 14)

- code for displaying to a user the selected set of items (reference A: "review results from computations and data queries in a variety of graphical displays", Bullet 7, Page 3; The Graphical User Interface, Page 6; Last Paragraph, Page 10; Paragraph 1, Page 11; Figures 3, 8; reference B: Column 2, Page 4; Figures 4-6; reference C: User Interface, Pages 8-9; Figures 7, 10-12); and

- code (software, routine, subsystem, component, object, graphical user interface, software environment, etc.) for selecting and displaying a set of items based on the calculated set of values (using a computer to select, calculate and display; Decision Desktop, Default Value Selector, Graphical User Interface, Schematic Graphic Editor, etc.; reference A: The Graphical User Interface, Page 6; The Decision Desktop, Pages 7-8; Last Paragraph, Page 10; Paragraph 1, Page 11; Figures 3, 5-6; reference C: Information Technologies, Pages 4-5; Figure 2).

Regarding Claim 42 BDA teaches that the system and method for selecting items for a project further comprises sending/transmitting project information via a network

(reference A: "Distributed computing and multi-user collaborative design over the Internet is a major part of the long-term BDA vision.", Paragraph 3, Page 14; reference C: Information Technologies, Pages 4-5).

Further regarding Claim 42, the method as claimed is merely adapted to be coupled to a network however the system is not actually connected to a network or transmits project information. For the purposes of examination examiner assumes the applicant will amend the claim to recite that method actually sends/transmits project information via a network.

Regarding Claim 82 BDA teaches a system and method of selecting items for a project wherein the building system is a HVAC system (HVAC, heating plant, cooling plant; reference B: Figures 7-8 reference C: Column 1, Paragraph 2, Page 4; RESEGY, Column 2, Paragraph 1, Page 13; Column 1, Paragraph 4).

Further regarding Claims 82 it is noted that the specific labels applied to the one or more building system(s) represent non-functional descriptive material and are not functionally involved in the steps recited nor do they alter the recited structural elements. The recited method steps would be performed the same regardless of the specific labels applied to the building system(s). Further, the structural elements remain the same regardless of the labels applied to the building system(s). Thus, this descriptive material will not distinguish the claimed invention from the prior art in terms

of patentability, *see In re Gulack, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed. Cir. 1983); In re Lowry, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994); MPEP § 2106.*

Regarding Claims 84-85 BDA teaches that the system and method for selecting items for a project further comprises analyzing the interactions (relationships, interdependencies, etc.) between at least two items and a structural component (system, building type, etc.) based on their values (reference A: Page 5; Figure 2; reference B: Pages 2, 5; Figures 7-8; reference C: Performance prediction, Page 2; Performance evaluation, Page 3).

Regarding Claim 89 BDA teaches a system and method of selecting items for a project wherein the project information is a computer-aided-design (CAD) file (reference A: Abstract; Page 11; Figure 1; reference B: "The Dual Model", Pages 7-8; reference C: Column 1, Paragraph 1, Page 2).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claim 80 is rejected under 35 U.S.C. 103(a) as being unpatentable over Building Design Advisor (BDA) software product (computer-implemented method and system) developed by Lawrence Berkeley National Laboratory University of California, Berkeley features, capabilities and/or *characteristics inherent* in the BDA software product being disclosed in at least the following:

I. Papamichael K. et al., Building Design Advisor: automated integration of multiple simulation tools (1997), herein after reference A;

II. Papamichael, K. et al., Product modeling for computer-aided decision making (1999), herein after reference B; and

III. Papamichael K., Application of information technologies in building design decisions (1999), herein after reference C

as applied to claims 1-2 above and further in view of official notice.

Regarding Claim 80 BDA does not expressly teach that a project criterion is an energy budget.

Official notice is taken that providing budgets for projects, such as energy budgets, provide a mechanism for defining design constraints and/or considerations for the project is old and well known.

For example commercial and/or residential projects/structures commonly have energy budgets wherein the user of the project defines their expected/desired/budgeted energy costs at which point it is the role of the building decision-maker (architect, designer, etc.) to design a project that conforms to the budget constraints identified by the end-customer.

Support for that providing budgets for projects, such as energy budgets, wherein the budgets provide a mechanism for defining design constraints and/or considerations for the project can be found in at least the following reference Carroll, William Leslie, Energy and Economic Optimization of Conduction-Dominated Buildings (1986):

- "In performance standards, only the maximum allowable energy consumption ("energy budget") is specified (usually based on building size, type, climate, etc.) without specifying in detail how an individual building must be designed to meet this requirement. Thus any building design that can be shown to comply with the energy budget requirement is acceptable under the standard...Thus the setting of optimal budget levels for performance standards is an important economic and policy issue.", Paragraph 1, Page 2;

- "Energy budget levels in proposed federal building energy performance standards were developed by enumerative determination of life-cycle cost...", Paragraph 1, Page 8; and

- Abstract; Section 2.6.2, Page 31; Section 5.2.4, Page 129.

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting items for a project within criteria including costs/economics as taught by BDA would have benefited from enabling users to define budget constraints for the project including but not limited to energy budgets in view of the teachings of official notice; the resultant system ensuring projects/structures meet the end-customer's/building decision-makers requirements/constraints (e.g. building energy budget).

12. Claims 3-6, 10-12, 15-16, 19-24, 26, 35 and 80-81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Building Design Advisor (BDA) software product (computer-implemented method and system) developed by Lawrence Berkeley National Laboratory University of California, Berkeley features, capabilities and/or *characteristics inherent* in the BDA software product being disclosed in at least the following:

I. Papamichael K. et al., Building Design Advisor: automated integration of multiple simulation tools (1997), herein after reference A;

II. Papamichael, K. et al., Product modeling for computer-aided decision making (1999), herein after reference B; and

III. Papamichael K., Application of information technologies in building design decisions (1999), herein after reference C;

as applied to claims 1-2, 7, 13-14, 17-18, 25, 30-31, 33, 42, 82, 84-85 and 89 above and further in view of MECcheck Software User's Guide Version 3.0 (April 2000, MECcheck).

Regarding Claim 3 BDA teaches a system and method of selecting items of a project wherein determining sets of items further comprises calculating a value (project value, data, etc.) based on the project information/criteria and determining the set of items that meet multiple criteria (requirements, thresholds, constraints, etc.) as part of the iteratively project design and performance evaluation process (reference A: Page 12; reference B: Page 4; Figure 1; reference C: Column 2, Paragraph 2, Page 4).

BDA does not expressly teach determining that a set of items is in *compliance* with project values as claimed.

MECcheck teaches determining that a set of selected items is in compliance with a set of project values (e.g. energy/building codes) in an analogous art of project performance analysis for the purposes of ensuring (guaranteeing) that a project meets with applicable building codes prior to, during and after construction (Introduction: Pages 1, 4-5).

More generally MECcheck teaches a computer-implemented method and system for selection items of a project within criteria comprising:

- inputting project information including project criteria (Software User's Guide: Pages 6-16);

- determining with a computer sets of items based on the project information that meet the project criteria (Compliance Example, Pages 27-29);

- calculating for each set of items two or more values (first, second, total first/second value, attributes, parameters, cost, energy usage, comfort, performance, etc.; Software User's Guide: Last Paragraph, Page 3; Paragraph 1, Page 4; Compliance Example, Pages 27-29);

- selecting a set of items based on the one or more calculated values (Steps 1-5, Page 4; Figure 1; Software User's Guide, Pages 1, 22; Compliance Example, Pages 27-29); and

- displaying to a user the selected set of items that meet the project criteria (Figure 1; Compliance Example, Pages 27-29).

MECcheck further teaches a system and method for evaluating the performance of a selected set of items (e.g. a building design) wherein the performance is defined by the project's compliance to selected building energy codes such as maximum U-factors, minimum R-values, insulation, HVAC, windows and the like (Introduction: Pages 1, 4-5) and further wherein building energy codes specify the thermal envelope requirements for the project.

MECcheck further teaches that the system and method for selecting/evaluating items, such as insulation and windows, for a construction project is part of an iterative design process wherein trade-offs are made amongst the various project items (Software Overview: "...enables you to quickly compare different insulation levels in different parts of your building to arrive at a package that works best for you.", Page 1; Page 27). MECcheck teaches that the system utilizes project structural, weather, material, mechanical equipment (HVAC) and other information to evaluate the

performance of the selected project items (Appendix C: Building Envelope, Pages 1-2; Software Overview: Pages 15-21, 27-29).

MECcheck further teaches that the project performance analysis system and method provides information such as maximum UA, your UA as well as percent better/worse than code (Software Overview: Pages 3-4, 15-21, 27-29).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items meeting within project criteria as taught by BDA would have benefited from determining that a set of project items wherein in compliance with at least one project value (e.g. code) in view of the teachings of MECcheck; the resultant system/method enabling building decision-makers to determine that a set of items (project design) is in compliance with a set of project values (energy/building codes) thereby ensuring (guaranteeing) that the project design (set of selected item) meets with applicable building codes prior to, during and after construction (MECcheck: Introduction: Page 1, 4-5).

Regarding Claims 4-5 BDA teaches a system and method of selecting items of a project wherein determining sets of items further comprises iterating through combinations of item values (first, second, parameters, selections, multiple designs, etc.) and determining (selecting, choosing, calculating, etc.) sets of items that meet project criteria (first/second project value, parameter, criteria, goal, target, design criteria, etc.; reference A: Abstract; Figures 3, 5, 8; reference B: Column 1, Paragraphs

1-2, Page 1; Column 2, Paragraph 4, Page 2; Figure 1; reference C: "The main objective of the Building Design Advisor (BDA) project is to develop a computer-based tool that allows building decision-makers to quickly and easily integrate energy considerations into decision making throughout the early phases of building design.", Column 2, Paragraph 1, Page 3; Figures 1-2).

Regarding Claim 6 BDA teaches that the system and method for selecting items of a project further comprises storing in a database a plurality of project values and item values (second project values, first item values, project database, prototypes database, third party databases, etc.; reference A: "The integrated data model", Pages 4-5; Paragraph 1, page 8; "Interfaces to Databases", Figure 1; reference B: Column 2, Page 2; Figure 2; reference C: Column 2, Paragraph 1, Page 5).

Regarding Claim 10 BDA teaches a system and method of selecting items for a project wherein a project value is a U value (1/R, thermal conductance/performance; reference B: Column 1, Paragraph 1, Page 3; Column 2, Paragraph 1, Page 7).

While BDA teaches the utilization of a plurality of project values including but not limited to U-values to measure an items/structures/products performance BDA does not expressly teach that the U-value is a UA value (UA= U-factor x area) as claimed.

MECcheck teaches that a project value is a UA value, in an analogous art of project performance evaluation, for the purposes of evaluating and ensuring that the thermal performance of a building (e.g. UA value) complies with building energy codes (Introduction: Page 5, Bullet 1; Software Overview: Pages 1, 3-4; Appendix B: Pages 1-2, Definitions: Page 3).

It would have been obvious to one skilled in the art at the time of the invention that the system and method of selection project items within project criteria as taught by BDA would have benefited from determining/evaluating a project's UA value/factor in view of the teachings of MECcheck; the resultant system/method enabling users to evaluate the project's overall energy performance and/or to ensure that the selected set of items for the project comply with building energy codes (MECcheck: Introduction: Pages 1, 4-5).

Regarding Claim 11 BDA teaches a system and method of selecting items of a project wherein the project value is a glazing value (reference C: "The design decision is now reduced to finding a glazing, which will reduce energy requirements to the extent possible.", Column 2, Paragraph 2, Page 4; Column 1, Paragraph 1, Page 5).

While BDA teaches the utilization of a plurality of project values including but not limited to glazing and other window related parameters BDA does not expressly teach that a project value is a glazing *area percentage* as claimed.

MECcheck teaches that a project value is a glazing area in analogous art of project performance evaluation for the purposes of selecting items that meet/comply with project criteria such as building energy codes (MECcheck: Appendix B: Pages 1-2; Definitions Page 3; Software Overview: Page 15).

MECcheck further teaches representing glazing area values as decimals and fractions (the mathematical equivalent percentages; Appendix B, Pages 1-2).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for designing projects/structures that meet a plurality of criteria, specifically its ability to evaluate designs based on glazing values, as taught by BDA would have benefited utilizing glazing *area* values as part of the design evaluation process in view of the teachings of MECcheck; the resultant system enabling users to determine/select the glazing area that meet the design requirements and/or building energy codes (BDA: reference C: "The design decision is now reduced to finding a glazing, which will reduce energy requirements to the extent possible.", Column 2, Paragraph 2, Page 4).

Neither BDA nor MECcheck expressly teach that the glazing area is represented as a percentage as claimed.

Official notice is taken that representing values using percentages is old and very well known, specifically it is old and well known to represent project (building, etc.) glazing values using glazing area percentages wherein such percentages represent the portion (fraction, percent) of a structure having windows, doors or other fenestration elements.

Support that it is old and well known to represent project (building, etc.) glazing values using glazing area percentages wherein such percentages represent the portion (fraction, percent) of a structure having windows, doors or other fenestration elements can be found in at least the following reference RESFEN 3.1 A PC Program for Calculating the Heating and Cooling Energy Use of Windows in Residential Buildings (1999; Last Paragraph, Page 5-4; Figure 5-5; Paragraph 1, Page 5-10; Figures 5-15 and 5-16).

It would have been obvious to one skilled in the art at the time of the invention that the system and method selecting items within project criteria wherein at least one of the criteria includes a glazing area as taught by the combination of BDA and MECcheck would have benefited from representing the fraction/portion of the building/envelope (project, structure, item, component, etc.) having fenestration (windows, doors, etc.) in view of the teachings of official notice.

Regarding Claim 12 BDA does not expressly teach that one of the project values is an R-value as claimed.

MECcheck teaches that one of the project values is an R-value in an analogous art of project performance evaluation for the purposes of ensuring that a set of selected items (design) meets building energy codes (Introduction: Page 5, Bullet 1; Page 6; Definition: Page 4).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for designing projects/structures that meet a plurality of criteria as taught by BDA would have benefited utilizing R-values as part of the design evaluation process in view of the teachings of MECcheck; the resultant system enabling users to determine/select the insulation and other project items that meet the design requirements and/or building energy codes (minimum R-value, trade-off analysis, etc.; MECcheck: Compliance Example, Pages 27-29; Appendix D: Pages 1-2).

Further regarding Claims 12 it is noted that the specific labels applied to the one or more project value(s) represent non-functional descriptive material and are not functionally involved in the steps recited nor do they alter the recited structural elements. The recited method steps would be performed the same regardless of the specific labels applied to the project value(s). Further, the structural elements remain the same regardless of the labels applied to the project value(s). Thus, this descriptive material will not distinguish the claimed invention from the prior art in terms of

patentability, *see In re Gulack, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed. Cir. 1983); In re Lowry, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994); MPEP § 2106.*

Regarding Claims 15-16 BDA teaches a system and method of selecting items for a project wherein default project values are generated based at least in part on building codes/standard (reference A: Page 12, Bullets 1-4).

BDA does not expressly teach that one of the criteria for selecting items comprises a portion of a building code as claimed.

MECcheck teaches selecting/evaluating project items based on the selected item(s) ability to meet/comply with a building energy code in an analogous art of evaluating the performance of project designs for the purposes of ensuring that a project meets applicable building codes prior to, during and after construction (Introduction: Pages 1, 4-5; Software Overview: Pages 25-26).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting and evaluating project designs (items, components, etc.) as taught by BDA would have benefited from further evaluating the selected project items ability to meet/comply with building energy codes in view of the teachings of MECcheck; the resultant system enabling building-decision-makers to

ensure their project design comply with local/national building codes (Introduction: Pages 1, 4-5).

Regarding Claims 19-20 BDA teaches a system and method of selecting items for a project wherein the project information comprises mechanical equipment information including a forced air furnace, boiler, heat pump *or* air conditioner (HVAC, heating plant, cooling plant; reference B: Figures 7-8; reference C: Column 1, Paragraph 2, Page 4; RESEGY, Column 2, Paragraph 1, Page 13).

Further regarding Claims 19-20 it is noted that the specific labels applied to the one or more mechanical equipment items represent non-functional descriptive material and are not functionally involved in the steps recited nor do they alter the recited structural elements. The recited method steps would be performed the same regardless of the specific labels applied to the mechanical equipment items. Further, the structural elements remain the same regardless of the labels applied to the mechanical equipment items. Thus, this descriptive material will not distinguish the claimed invention from the prior art in terms of patentability, *see In re Gulack, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed. Cir. 1983); In re Lowry, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994); MPEP § 2106.*

Regarding Claim 21 BDA does not expressly teach that the project information further comprises upgrade information as claimed.

MECcheck teaches analyzing additions/renovations/alterations to existing projects/structures (i.e. upgrades, improvements, etc.) wherein the project information comprises upgrade information and calculating a project value further comprises increasing the project value based on the upgrade information and re-determining sets of items that are in compliance with the increased project value in an analogous art of project performance evaluation for the purposes of ensuring added/updated project items comply with building codes (Introduction: "What buildings must comply?", Page 1; Appendix A: Additions Pages 1-2; Definitions: Additions, Alterations, Page 1).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items within project criteria as taught by BDA would have benefited from analyzing both new and existing projects/structures (upgrades, retrofit, update, renovations, additions, etc.) in view of the teachings of MECcheck; the resultant system and method enabling building decision-makers to compare/contrast alternative building/project designs (selected sets of components) thereby ensuring upgrade projects comply with building codes and/or to analyze the expected/predicted/estimated benefits of the new/upgraded project (MECcheck: Overview: Pages 1, 4-5; Appendix A: Additions, Pages 1-2).

Regarding Claim 22 BDA teaches a system and method of selecting items for a project wherein the project information include at least one energy saving component

(energy saving strategies, energy efficient components, etc.; reference A: "Background", Page 2; reference C: Page 4, Column 1, Paragraph 2).

BDA does not expressly teach that the project information further comprises upgrade information as claimed.

MECcheck teaches analyzing additions/renovations/alterations to existing projects/structures (i.e. upgrades, improvements, etc.) wherein the project information comprises upgrade information and calculating a project value further comprises increasing the project value based on the upgrade information and re-determining sets of items that are in compliance with the increased project value in an analogous art of project performance evaluation for the purposes of ensuring added/updated project items comply with building codes (Introduction: "What buildings must comply?", Page 1; Appendix A: Additions Pages 1-2; Definitions: Additions, Alterations, Page 1).

MECcheck further teaches that at least one project item/component is an energy saving component (e.g. HVAC efficiency; Software Overview: Page 22).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items within project criteria as taught by BDA would have benefited from analyzing both new and existing projects/structures (upgrades, retrofit, update, renovations, additions, etc.) in view of the teachings of MECcheck; the resultant system and method enabling building decision-makers to

compare/contrast alternative building/project designs (selected sets of components) thereby ensuring upgrade projects comply with building codes and/or to analyze the expected/predicted/estimated benefits of the new/upgraded project (MECcheck: Overview: Pages 1, 4-5; Appendix A: Additions, Pages 1-2).

Regarding Claim 23 BDA does not expressly teach indicating information regarding an efficiency percentage upgrade as claimed.

MECcheck teaches indicating a percentage upgrade (improvement, efficiency, percent better/worse) than an energy baseline/code/standard in an analogous art of project item performance analysis and evaluation for the purposes of indicating the extent to which a selected set of items (design) meets the building codes (Software Overview: Pages 3-4, 15-21, 27-29).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items within a criteria as taught by BDA would have benefited from indicating the extent to which a design (news, existing, upgrade, set of items, etc.) does or does not meet a baseline/expected result and/or represents an improvement in view of the teachings of MECcheck; the resultant system enabling building decision-makers to readily discern whether or not their design meets given project criteria (MECcheck: Software Overview: Page 5).

Regarding Claim 24 BDA teaches that the system and method for selecting items of a project further comprising determining energy consumption (usage, requirements) based on the selected set of items (reference A: energy costs; Last Paragraph, Page 4; energy analysis, DOE-2; Figure 1; reference B: DOE-2, Column 1, Paragraph 1, Page 3; reference C: RESGY "is used with annual weather data distributions to compute monthly totals for energy requirements by end use and energy source.", Column 2, Paragraph 2, Page 13; DOE-2 for energy analysis, Figure 2).

Regarding Claim 26 BDA does not expressly teach that one of the types of building materials includes insulation materials as claimed.

MECcheck teaches that one of the project items/components is insulation having R-values in an analogous art of project performance evaluation for the purposes of ensuring that a set of selected items (design) meets building energy codes (Introduction: Page 5, Bullet 1; Page 6; Definition: Page 4).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for designing projects/structures that meet a plurality of criteria as taught by BDA would have benefited modeling insulation as part of the design evaluation process in view of the teachings of MECcheck; the resultant system enabling users to determine/select the insulation and other project items that meet the design requirements and/or building energy codes (minimum R-value, trade-off analysis, etc.;

MECcheck: Compliance Example, Pages 27-29; Appendix D: Pages 1-2).teaches that the system and method for selecting items for a project wherein a type of building material includes insulation material.

Regarding Claim 35 BDA teaches a system and method of selecting items for a project based on a plurality of performance criteria including but not limited to costs wherein the items are selected in order to optimize/achieve the desired performance (i.e. reduce initial costs, ongoing energy costs, etc.; reference A: Abstract; The Decision Desktop, Pages 7-8; reference B: Column 1, Last Paragraph, Page 2; Column 1, Page 5; reference C: Column 2, Paragraph 2, Page 4).

BDA does not expressly teach selecting items with the lowest total value as claimed.

MECcheck teaches selecting project items that have the lowest value and/or values that optimize one or more building energy codes/standards (criteria) in an analogous art of project performance evaluation for the purposes of ensuring that a project's selected set of items complies with building energy codes (e.g. minimum R-value, trade-off analysis, etc.; Introduction: Pages 1, 4-5; Appendix D: Trade-off Worksheet Guide, Pages 1-3; Software Overview: Compliance Example, Pages 27-30).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting items for projects that meet a plurality of criteria, including economic/cost and energy performance criteria, as taught by BDA would have benefited from minimizing item values (e.g. minimum R-value) in view of the teachings of MECcheck; the resultant system enabling building decision-makers to design and evaluate buildings (i.e. select items) that do not over and/or under comply/meet with project criteria and/or codes (MECcheck: Software Overview: Page 4, Paragraph 1).

Regarding Claim 81 BDA does not expressly teach that one of the project values is an energy baseline.

MEC teaches that one of the project values is an energy baseline (standard, code, acceptable level, minimum requirement, etc.) which building designs (set of selected components) must minimally meet, in an analogous art of project performance analysis for the purposes of ensuring designs/selected set of components meet baseline/required performance levels (Overview: Pages 1, 4-5).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items/components within project criteria as taught by the BDA would have benefited from identifying an energy baseline in view of the teachings of MECcheck; the resultant system enabling building decision-

makers to compare their designs with the baseline and ensure the meet or exceed the baseline requirements (MECcheck: Overview: Pages 1, 4-5).

13. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Building Design Advisor (BDA) software product (computer-implemented method and system) developed by Lawrence Berkeley National Laboratory University of California, Berkeley features, capabilities and/or *characteristics inherent* in the BDA software product being disclosed in at least the following:

I. Papamichael K. et al., Building Design Advisor: automated integration of multiple simulation tools (1997), herein after reference A;

II. Papamichael, K. et al., Product modeling for computer-aided decision making (1999), herein after reference B; and

III. Papamichael K., Application of information technologies in building design decisions (1999), herein after reference C;

as applied to claims 1-2 above and further in view of Bosch, Maria An Expert System for Cost-Effective Energy Efficiency Calculations (1996).

Regarding Claims 8-9 BDA teaches a system and method of selecting items of a project wherein selecting a set of items further comprises:

- selecting items (components, materials, elements, activities, etc.) based on a plurality of performance criteria including but not limited to cost (e.g. lowest initial cost, life-time cost, etc.), energy savings, and the like (cost libraries, economic analysis module, cost analysis; reference C: Column 1, Paragraph 2, Page 1; Column 1, Paragraph 1, Page 2; Column 1, Paragraph 2, Page 4; Figure 2; Decision Desktop, multi-criterion decision making; reference A: Last Paragraph, Page 2; "The Decision

Desktop", Pages 7-8; Last Paragraph, Page 10; Paragraph 1, Page 11; "DVS selects a default exterior wall segment type by first computing the ASHRAE recommended minimal thermal resistance based on degree-days and then selecting a wall type from the library or walls that best matches the recommended value.", Paragraph 2, Page 12; Figure 3; reference B: Column 2, Page 5; "The building model", Pages 9-10; Column 2, Paragraph 2, Page 11); and

- presenting (providing, sending, displaying, etc.) the set of selected items as discussed above.

BDA further teaches that the system utilizes (is integrated with) several modules/systems including EAM for cost analysis, DOE-2 for building energy analysis and cost libraries (reference A: Figure 1; reference B: Figure 1; reference C: Column 2, Paragraph 1, Page 2; Figure 2).

BDA does not expressly teach selecting items with the lowest value or subsequently presenting the selected lowest value items as claimed.

Bosch teaches selecting and presenting items with the lowest value (cost) in an analogous art of project performance analysis and evaluation for the purposes of assisting designers (building decision-makers) select the most appropriate and cost effective materials/products (Columns 1-2, Page 23).

More generally Bosch teaches an expert system and method for selecting project items (materials, components, systems, equipment, etc.) wherein the system

recommends the most cost-effective building components." (Column 1, Paragraph 2, Page 23) as part of an iterative design process wherein architects (designers, building decision-makers) iteratively design and evaluate alternative project designs (selected sets of components) to ensure they meet a plurality of criteria including but not limited to costs (initial, lifecycle, etc.), building codes and the like thereby enabling the architect to "find the optimal combination of components." (Column 2, Paragraphs 1-2, Page 23; "this system would help designers select the most appropriate and cost-effective combination of materials for their buildings. The idea of improving methods to meet code, by looking at the whole energy problem...program offers suggestions for improvement based on the most cost-effective alternatives.", Column 1, Paragraph 2, Page 24; "Other options are to increase the R values for the ceilings and walls and/or improve the air-conditioning efficiency. This prototype system chooses the option that, based on the area of the house, will create the least cost.", Column 1, Paragraph 3, Page 24).

Bosch further teaches that the component values include glass, ceiling, walls, mechanical equipment, insulation and the like (Column 3, Page 23; System Overview; Column 1; Page 24).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items that meet a plurality of performance criteria including but not limited to cost as taught by BDA would have benefited from selecting and presenting (recommending, identifying, etc.) project

elements having the lowest value (e.g. most cost-effective) in view of the teachings of Bosch; the resultant system enabling designers (architects, building decision-makers) to select the most appropriate (i.e. meet project criteria) and cost effective project items (Bosch: Page 23, Column 2, Paragraphs 1-2).

14. Claims 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Building Design Advisor (BDA) software product (computer-implemented method and system) developed by Lawrence Berkeley National Laboratory University of California, Berkeley features, capabilities and/or *characteristics inherent* in the BDA software product being disclosed in at least the following:

I. Papamichael K. et al., Building Design Advisor: automated integration of multiple simulation tools (1997), herein after reference A;

II. Papamichael, K. et al., Product modeling for computer-aided decision making (1999), herein after reference B; and

III. Papamichael K., Application of information technologies in building design decisions (1999), herein after reference C;

in view of MECcheck Software User's Guide Version 3.0 (April 2000, MEC) as applied to claims 1-3 above and further in view of Jung, Pyoung-Young, U.S. Patent No. 6,996,503.

Regarding Claims 27-28 neither BDA nor MECcheck expressly teach generating a bill-of-materials based on the selected items and displaying the generated bill-of-materials as claimed.

Jung teaches generating a bill-of-materials based on the selected set of items (i.e. project take-off) and displaying (presenting, providing, etc.) the total amount of items required to build/construct the project, in an analogous art of construction for the

purposes of automatically creating a bill-of-materials (take-off analysis sheet) that can be sent via the Internet to a plurality of users including but not limited to material suppliers/providers/vendors (Column 1, Lines 7-28; Column 2, Lines 32-46; Column 3, Lines 38-51; Column 15; Lines 31-48; Figure 10).

More generally Jung teaches a system and method for selecting project items (material selection) and automatically generating a bill-of-materials (take-off analysis) for a set of selected project items represented in a CAD file. Jung further teaches that the take-off system and method further sends/receives project information over a network as well as comprises a project item/component and material cost databases (Paragraphs Column 5, Lines 44-68) and has the ability to accept payment for services rendered (i.e. for creating a bill-of-material and cost estimate from a CAD file; Column 13, Lines 55-68; Column 14, Lines 1-20).

It would have been obvious to one skilled in the art at the time of the invention that the method and system for selecting project items within project criteria as taught by the combination of BDA and MEC would have benefited from automatically generating a bill-of-materials based on the selected/identified design (selected components) and estimating the total amount of items required for the project in view of the teachings of Jung; the resultant system/method enabling users (designers, construction managers, cost managers, building decision-makers) to easily identify and share the materials/items/components required for the project (Jung: Column 1, Lines 62-68; Column 2, Lines 1-14).

15. Claims 32, 86 and 88 are rejected under 35 U.S.C. 103(a) as being unpatentable over Building Design Advisor (BDA) software product (computer-implemented method and system) developed by Lawrence Berkeley National Laboratory University of California, Berkeley features, capabilities and/or *characteristics inherent* in the BDA software product being disclosed in at least the following:

I. Papamichael K. et al., Building Design Advisor: automated integration of multiple simulation tools (1997), herein after reference A;

II. Papamichael, K. et al., Product modeling for computer-aided decision making (1999), herein after reference B; and

III. Papamichael K., Application of information technologies in building design decisions (1999), herein after reference C;

as applied to claims 1-2 above and further in view of Pray et al., U.S. Patent No. 4,885,694.

Regarding Claim 32 BDA teaches a computer-implemented method and system of selecting items for a project within criteria wherein the project information/data includes schedules and activities for the project (reference B: Column 2, Paragraph 1, Page 12).

BDA does not expressly teach that the system (database) further includes contractor scheduling information and further comprises determining an installation

schedule and associated costs for the selected set of items based on the contract schedule information and installation costs as claimed.

Pray et al. teach contractor (labor, worker, staff, etc.) scheduling information, determining an installation (labor, build, development, etc.) schedule and associated costs for the selected set of items (e.g. project design) based on the contract schedule information and installation costs (Column 2, Lines 46-68; Column 3, Lines 1-21; Column 4, Lines 50-68; Column 7, Lines 5-44; Column 8, Lines 21-49; Column 12, Lines 43-68; Column 13, Lines 25-39; Column 17, Lines 42-61; Figure 14) in an analogous art of selecting items for a project within a criteria (Column 1, Lines 5-25) for the purposes of generating proposals, bids, bill-of-materials and other project documentation as well as to enable the project/cost management of the project (Column 2, Lines 46-68).

More generally Pray et al. teach a system and method for selecting items of a project within a criteria comprising inputting project information data, determining/selecting a set of items that meet the project criteria and displaying the selected items (program sizing, substantially automated system design, etc.; Column 1, Lines 24-27; Column 12, Lines 10-15; Column 13, Lines 65-68; Column 14, Lines 19-37).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items within project criteria as taught

by BDA would have benefited from including contractor (labor, worker, staff, etc.) scheduling information, determining an installation (labor, build, development, etc.) schedule and associated costs for the selected set of items (e.g. project design) based on the contract schedule information and installation costs in view of the teachings of Pray et al.; the resultant system/method enabling users/businesses to generate proposals, bids, bill-of-materials and other project documentation as well as to enable the project/cost management of the project (Pray et al.: Column 2, Lines 46-68; Column 7, Lines 5-45; Column 12, Lines 43-68).

Regarding Claim 86 BDA does not expressly teach determining delay costs based on the installation schedule as claimed.

Pray et al. teach determining and updating an installation schedule, as discussed above, in an analogous art of selecting sets of project items that meet project criteria for the purposes of estimating and managing project costs (Column 2, Lines 46-68; Column 7, Lines 5-45; Column 12, Lines 43-68).

Pray et al. does not expressly teach determining the costs of delays as claimed.

Official notice is taken that determining the cost of delays is old and very well known in construction project management for providing project managers information

related to the status of the project and/or the impact of delays and other events on things such as the project budget/schedule.

Support that determining the cost of delays is old and very well known in construction project management for providing project managers information related to the status of the project and/or the impact of delays and other events on things such as the project budget/schedule can be found in at least the following reference Primavera Project Planner – Planning and Control Guide Version 3.0 (1999): Paragraph 1, Page 17; Pages 32, 41, 72, 194, 198, 215.

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items within criteria as taught by the combination of BDA and Pray et al. would have benefited from deterring the cost of delays to the installation/construction/building of the selecting items/project in view of the teachings of official notice; the resultant enabling users to monitor the impact of delays on project schedules and/or budgets.

Regarding Claim 88 BDA does not expressly teach charging a fee as claimed.

Pray et al. teach charging a fee (job bill processing, Column 1, Lines 20-22; Column 3, Lines 9-15; Column 8, Lines 30-35; Figure 8) in an analogous art of selecting sets of items for a project within criteria for the purposes automatically billing customers (Column 3, Lines 9-15).

It would have been obvious to one skilled in the art at the time of the invention that the building performance evaluation system as taught by BDA would have been benefited from charging a fee for the utilization of the system in view of the teachings of Pray et al.; the resultant system compensating individuals and/or organizations for their products/services (Pray et al.: Column 3, Lines 9-15).

16. Claims 87 is rejected under 35 U.S.C. 103(a) as being unpatentable over Building Design Advisor (BDA) software product (computer-implemented method and system) developed by Lawrence Berkeley National Laboratory University of California, Berkeley features, capabilities and/or *characteristics inherent* in the BDA software product being disclosed in at least the following:

I. Papamichael K. et al., Building Design Advisor: automated integration of multiple simulation tools (1997), herein after reference A;

II. Papamichael, K. et al., Product modeling for computer-aided decision making (1999), herein after reference B; and

III. Papamichael K., Application of information technologies in building design decisions (1999), herein after reference C;

as applied to claims 32, 86 and 88 above and further in view of Pray et al., U.S. Patent No. 4,885,694 and further in view of MECcheck Software User's Guide Version 3.0 (April 2000, MECcheck).

Regarding Claim 87 neither BDA nor Pray et al. expressly teach providing performance guarantees (criteria, parameter, value, etc.) as claimed.

MECcheck teaches guaranteeing (ensuring) that a project achieves a target requirement (building code, performance requirement/guarantee) in analogous art of selecting project items/components for the purposes of ensuring a project complies with the required building codes (Introduction: Pages 1, 4-5).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting items within a criteria as taught by the combination of BDA and Pray et al. would have benefited from ensuring (guaranteeing) that the selected project items met the required building codes (target requirements) in view of the teachings of MECcheck; the resultant system enabling users to guarantee/certify a project's design (selected set of items) meets target requirements defined by the building codes (MECcheck: Introduction: Pages 1, 4-5).

17. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Building Design Advisor (BDA) software product (computer-implemented method and system) developed by Lawrence Berkeley National Laboratory University of California, Berkeley features, capabilities and/or *characteristics inherent* in the BDA software product being disclosed in at least the following:

I. Papamichael K. et al., Building Design Advisor: automated integration of multiple simulation tools (1997), herein after reference A;

II. Papamichael, K. et al., Product modeling for computer-aided decision making (1999), herein after reference B; and

III. Papamichael K., Application of information technologies in building design decisions (1999), herein after reference C;

as applied to claim 33 above and further in view of Jung, Pyoung-Young, U.S. Patent No. No. 6,996,503.

Regarding Claim 34 BDA teaches a system and method of selecting items for a project wherein each of the items is either a building material, building system or project structure and each has an item cost set of items (total first value, cost libraries/database, economic/cost criteria/analysis, etc.; reference C: Column 1, Paragraph 2, Page 1; Column 1 Paragraph 1, Page 2; Figure 2).

DBA does not expressly teach that the selected items have a total material cost as claimed.

Jung teaches that the selected items (bill-of-materials, take-off) have both individual component/item and project costs, in an analogous art of construction for the purposes of automatically creating a bill-of-materials (take-off analysis sheet) that can be sent via the Internet to a plurality of users including but not limited to material suppliers/providers/vendors (Column 1, Lines 7-28; Column 2, Lines 32-46; Column 3, Lines 38-51; Column 15; Lines 31-48; Figure 10).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items as taught by BDA with its ability to provide cost information and cost analysis would have benefited from providing a total material/item cost in view of the teachings of Jung; the resultant system enabler users (designers, construction managers, cost managers, building decision-makers) to be able to easily identify and share the materials/items/components required for the project (Jung: Column 1, Lines 62-68; Column 2, Lines 1-14).

18. Claims 36-38, 43 and 83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Building Design Advisor (BDA) software product (computer-implemented method and system) developed by Lawrence Berkeley National Laboratory University of California, Berkeley features, capabilities and/or *characteristics inherent* in the BDA software product being disclosed in at least the following:

I. Papamichael K. et al., Building Design Advisor: automated integration of multiple simulation tools (1997), herein after reference A;

II. Papamichael, K. et al., Product modeling for computer-aided decision making (1999), herein after reference B; and

III. Papamichael K., Application of information technologies in building design decisions (1999), herein after reference C;

in view of Jung, Pyoung-Young, U.S. Patent No. No. 6,996,503 as applied to claims 33-34 above and further in view of MECcheck Software User's Guide Version 3.0 (April 2000, MECcheck).

Regarding Claim 36 neither BDA nor Jung expressly teach that the items comprise different types of insulation, wherein the criteria is an energy code that uses a UA value for a given structure and further comprising code to calculate a UA value based on at least in part on input structure information and code to determine sets of insulation that may be used in constructing the structure in compliance with the UA value as claimed.

MECcheck teaches a system and method for evaluating/analyzing project the comply with codes/standards, in an analogous art of project/item performance, further comprising:

- the selection/utilization of a plurality of well known insulation types including but not limited to blown, sprayed, (Basic Requirements Guide: Page 5), cavity insulation (Software Overview: Page 9), duct insulation (Basic Requirements Guide: Pages 5-6), HVAC piping insulation (Base Requirements Guide: Page 9), slab insulation (Definitions: Page 5), rigid foam (Software Overview: Page 9) and the like as well as defining various levels/depths of insulation by location (structural components);

- project criteria that is an energy code and that comprises a UA value for a given structure (Software Overview: Pages 9; Basic Requirements: Pages 5-6); and

- determining sets of insulation, in compliance with the energy code UA value, to be used in constructing the project by calculating a UA value based on at least part of the structure information and energy code (Introduction: Pages 1, 4-5; Software Overview: Pages 1, 3-4, 22; Paragraph 2, Page 8; Compliance Examples, Pages 27-30).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items within project criteria as taught by the combination of BDA and Jung would have benefited from modeling/evaluating several types of insulations and their associated code UA values in view of the teachings of MECcheck; the resultant system enabling designers to ensure their

designs (alternative selections of building materials/equipment/items) comply with building codes/standards (MECcheck: Introduction: Pages 1, 4-5).

Regarding Claim 37 BDA teaches a system and method of selecting items for a project wherein the system (database) includes (reference C: "The design decision is now reduced to finding a glazing, which will reduce energy requirements to the extent possible.", Column 2, Paragraph 2, Page 4; Column 1, Paragraph 1, Page 5):

- glazing value and associated items; and
- determining sets of items to be used in constructing the project by calculating at least one glazing value for the structure based on the structure information.

Neither BDA nor Jung expressly teach wherein the at least one database further comprises *glazing area percentages* and associated items that may be used in constructing a structure while complying with the energy code and further comprising code to calculate at least one glazing area percentage for the structure based on the input structure information and code to determine sets of items by first determining the items that are associated with the calculated glazing area percentages as claimed.

MECcheck teaches that at least one database further comprises glazing area and associated items that may be used in constructing a structure while complying with the energy code and further comprising code to calculate at least one glazing area for the structure based on the input structure information and code to determine sets of

items by first determining the items that are associated with the calculated glazing area in analogous art of project performance evaluation for the purposes of selecting items that meet/comply with project criteria such as building energy codes ("Your UA", "Max UA"; Software User's Guide: Last Paragraph, Page 3; Windows, gross area, U-Factor, UA value; Page 15; Appendix B: Pages 1-2; Definitions Page 3).

MECcheck further teaches representing glazing area values as decimals and fractions (the mathematical equivalent percentages; Appendix B, Pages 1-2).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for designing projects/structures that meet a plurality of criteria, specifically its ability to evaluate designs based on glazing values, as taught by the combination of BDA and Jung would have benefited utilizing glazing *area* values as part of the design evaluation process in view of the teachings of MECcheck; the resultant system enabling users to determine/select the glazing area that meet the design requirements and/or building energy codes (BDA: reference C: "The design decision is now reduced to finding a glazing, which will reduce energy requirements to the extent possible.", Column 2, Paragraph 2, Page 4).

BDA, Jung and MECcheck do not expressly teach that the glazing area is represented as a *percentage* as claimed.

Official notice is taken that representing values using *percentages* is old and very well known, specifically it is old and well known to represent project (building, etc.) glazing values using glazing area percentages wherein such percentages represent the portion (fraction, percent) of a structure having windows, doors or other fenestration elements.

Support that it is old and well known to represent project (building, etc.) glazing values using glazing area percentages wherein such percentages represent the portion (fraction, percent) of a structure having windows, doors or other fenestration elements can be found in at least the following reference RESFEN 3.1 A PC Program for Calculating the Heating and Cooling Energy Use of Windows in Residential Buildings (1999; Last Paragraph, Page 5-4; Figure 5-5; Paragraph 1, Page 5-10; Figures 5-15 and 5-16).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for designing and evaluating projects/structures that meet a plurality of performance criteria wherein at least one of the criteria includes a glazing area as taught by the combination of BDA, Jung and MECcheck would have benefited from representing the fraction/portion/percentage of the building/envelope (project, structure, item, component, etc.) having fenestration (windows, doors, etc.) in view of the teachings of official notice.

Regarding Claim 38 BDA teaches a system and method of selecting items for a project by evaluating a plurality of items wherein the designs include glazing values as discussed above.

BDA does not expressly teach evaluating items based on glazing area *percentages* as claimed.

MECcheck teaches comparing selected items for a project including the evaluation of glazing area as discussed above. MECcheck further teaches that the system and method for selecting project items that comply with building codes/standards further comprises identifying the closeness (e.g. percent better/worse) of the selected project items (building design) to the building codes/standards for the purposes of enabling designers (users, architects, building decision-makers) to adjust their designs (e.g. make trade-offs, choose different components, etc.) in order to more closely meet the building codes/standards (Software Overview: Page 3; Page 4, Paragraph 1).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items within criteria as taught by the combination of BDA and Jung would have benefited from evaluating/analyzing UA factors/values and selecting project items that comply with building energy codes based at least in part on those UA values in view of the teachings of MECcheck; the resultant

system enabling designers to select project items that comply with building codes by enabling them to select a set of items that is closets to the required codes/standards (Software Overview: Page 3; Page 4, Paragraph 1).

BDA, Jung and MECcheck do not expressly teach that the glazing area is represented as a *percentage* as claimed.

Official notice is taken that representing values using *percentages* is old and very well known, specifically it is old and well known to represent project (building, etc.) glazing values using glazing area percentages wherein such percentages represent the portion (fraction, percent) of a structure having windows, doors or other fenestration elements, as discussed above.

It would have been obvious to one skilled in the art at the time of the invention that the system and method for designing and evaluating projects/structures that meet a plurality of performance criteria wherein at least one of the criteria includes a glazing area as taught by the combination of BDA, Jung and MECcheck would have benefited from representing the fraction/portion of the building/envelope (project, structure, item, component, etc.) having fenestration (windows, doors, etc.) in view of the teachings of official notice.

Regarding 43 BDA teaches that the system and method for selecting items for a project further comprises receiving and storing (database) updated material cost information (reference A: Abstract; reference B: "RS Means Cost Data", EAM Cost Analysis", Figure 1; reference C: "Cost Libraries", Figure 2).

Further regarding Claim 43, the method as claimed is merely adapted to receive and store updated material cost information however the system does not actually receive or store the updated information. For the purposes of examination examiner assumes the applicant will amend the claim to recite that method actually receives and stores updated material cost information.

Regarding Claim 83 neither BDA nor Jung expressly teach that one of the criteria is an energy budget or code to calculate an energy baseline level based at least in part on input structure information and code to determine sets of insulation that may be used in constructing the structure in compliance with the energy baseline level as claimed.

MECcheck teaches utilizing a plurality of project items/components to meet an energy baseline (requirement, code, standard) including but not limited to the use of insulation to meet a building code wherein the building decision-maker generates an predicted energy baseline (rating, compliance report, etc.) demonstrating the project's compliance to the building energy code (compliance report; Software Overview: Pages 1-3; Compliance Example Pages 27-30).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items/components within criteria as taught by the combination of BDA and Jung would have benefited from utilizing insulation to meet/exceed an energy baseline in view of the teachings of MECcheck; the resultant system being capable of demonstrating a project's compliance with building codes/standards (MECcheck: Software Overview: Pages 1-3).

BDA, Jung and MECcheck do not expressly teach that energy budget is a criterion as claimed.

Official notice is taken that providing budgets for projects, such as energy budgets, provide a mechanism for defining design constraints and/or considerations for the project is old and well known.

Support for that providing budgets for projects, such as energy budgets, wherein the budgets provide a mechanism for defining design constraints and/or considerations for the project can be found in at least the following reference Carroll, William Leslie, Energy and Economic Optimization of Conduction-Dominated Buildings (1986):

- "In performance standards, only the maximum allowable energy consumption ("energy budget") is specified (usually based on building size, type, climate, etc.) without specifying in detail how an individual building must be designed to meet this requirement. Thus any building design that can be shown to comply with the energy

budget requirement is acceptable under the standard...Thus the setting of optimal budget levels for performance standards is an important economic and policy issue.", Paragraph 1, Page 2;

- "Energy budget levels in proposed federal building energy performance standards were developed by enumerative determination of life-cycle cost...", Paragraph 1, Page 8; and

- Abstract; Section 2.6.2, Page 31; Section 5.2.4, Page 129.

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting items for a project within criteria including costs/economics as taught by the combination of BDA, Jung and MECcheck would have benefited from enabling users to define budget constraints for the project including but not limited to energy budgets in view of the teachings of official notice; the resultant system ensuring projects/structures meet the end-customer's/building decision-makers requirements/constraints (e.g. building energy budget).

19. Claims 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Building Design Advisor (BDA) software product (computer-implemented method and system) developed by Lawrence Berkeley National Laboratory University of California, Berkeley features, capabilities and/or *characteristics inherent* in the BDA software product being disclosed in at least the following:

I. Papamichael K. et al., Building Design Advisor: automated integration of multiple simulation tools (1997), herein after reference A;

II. Papamichael, K. et al., Product modeling for computer-aided decision making (1999), herein after reference B; and

III. Papamichael K., Application of information technologies in building design decisions (1999), herein after reference C;

in view of Jung, Pyoung-Young, U.S. Patent No. No. 6,996,503 and MECcheck Software User's Guide Version 3.0 (April 2000, MEC), as applied to claims 34 and 26 above and further in view of Bosch, Maria An Expert System for Cost-Effective Energy Efficiency Calculations (1996).

Regarding Claim 39 neither BDA nor Jung expressly teach code to decrease the UA value by a certain percentage, and code to determine another lowest cost set of items based on the decreased UA value as claimed.

MECcheck teaches adjusting (decreasing, increasing) the UA value as part of the design (selected items) trade-off analysis for determining a set of selected items that

comply with the building codes (Max UA, Your UA, percent over/under compliance, etc.; Introduction: Pages 1, 4-5; Software Overview: Pages 1, 3-4, 15, 22; Paragraph 2, Page 8; Compliance Examples, Pages 27-30).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items within project criteria as taught by the combination of BDA and Jung would have benefited from performing trade-off analysis between the plurality of project items/components (alternative designs; i.e. code to decrease the UA value by a certain percentage) in view of the teachings of MECcheck; the resultant system enabling designers to ensure their designs (alternative selections of building materials/equipment/items) comply with building codes/standards (MECcheck: Introduction: Pages 1, 4-5).

BDA, Jung and MECcheck do not expressly teach determining a lowest cost set of items based on the decreased UA value (changed project items/information) as claimed.

Bosch teaches identifying (selecting, presenting, recommending) a set of cost-effective (lowest cost) project items, in an analogous art of construction/building material selection/analysis, based on the iteratively analysis/trade-off analysis of a plurality of project values including but not limited to R values (R = 1/U) for the purposes of

assisting designers in selecting the most cost effective and appropriate project designs (set of items; Page 23, Columns 1-2; Page 24, Column 1; Figure 1).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items within project criteria including the use of UA values as part of the performance evaluation as taught by the combination of BDA, Jung and MECcheck would have benefited from selecting items having the lowest cost (most cost effective) in view of the teachings of Bosch; the resultant system enabling designers (architects, building decision-makers) to select the most appropriate (i.e. meet project criteria) and cost effective project items (Bosch: Page 23, Column 2, Paragraphs 1-2).

Regarding Claim 40 BDA teaches a system and method of selecting items for a project wherein the system (database) includes climate control equipment and calculates energy usage/consumption based on the set of project items including the climate control equipment information (DOE-2, HVAC, heating plant, cooling plant; reference B: Figures 7-8 reference C: Column 1, Paragraph 2, Page 4; RESEGY, Column 2, Paragraph 1, Page 13; Column 1, Paragraph 4).

Neither BDA nor Jung expressly teaches that insulation is one of the selected project items as claimed.

MECcheck teaches evaluating the impact of insulation and climate control equipment on a project's performance and/or ability to comply with building codes in an analogous art of project performance analysis for the purposes of ensuring the selected set of items (design) complies with building codes/standards (Introduction: "A major focus of the code provisions is on the building envelope insulation and window requirements", Page 1; Step 3, Compliance Process, Page 4; Software Overview: Compliance Example, Pages 27-30).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items that meet a plurality of criteria as taught by the combination of BDA and Jung would have benefited from taking into account the effect of insulation in view of the teachings of MECcheck; the resultant system enabling users to ensure the selected project items comply with building energy codes including but not limited to codes requiring specific insulation/thermal performance values (MECcheck: Introduction: Page 1).

Regarding Claim 41 BDA teaches that the system and method for selecting items for a project further comprising information on energy saving components (items, materials, equipment, etc.) used in constructing the project and that project items have U-values as discussed above.

Jung teaches determining cost based on a plurality of project information (inputs, material costs, etc.; Column 2, Lines 60-68) and performing take-off analysis to generate cost estimates and bill-of-materials (Column 5, Lines 54-68; Figures 8b-8c).

Neither BDA nor Jung expressly teach code to recalculate the UA value for the structure and to determine another lowest cost set of items based on the recalculated UA value as claimed.

MECcheck teaches code to recalculate the UA value for the structure, in an analogous art of project performance evaluation, for the purposes of evaluating and ensuring that the thermal performance of a building (Your UA, Max UA, percent over/under compliance, etc.) complies with building energy codes (Introduction: Page 5, Bullet 1; Software Overview: Pages 1, 3-4, 15; Appendix B: Pages 1-2, Definitions: Page 3) as well as performing trade-off analysis based on the UA and other project item/component values as discussed above.

It would have been obvious to one skilled in the art at the time of the invention that the system and method for iteratively designing (i.e. selecting project items) and evaluating project designs to evaluate their ability to meet a plurality of performance requirements/criteria (cost, energy, etc.) as taught by BDA and Jung would have benefited from code to recalculate the UA value for the structure during each of the design iterations/revisions in view of the teachings of MECcheck; the resultant system

enabling users to evaluate the project's overall energy performance and/or to ensure that the selected set of items for the project comply with building energy codes (MECcheck: Introduction: Pages 1, 4-5).

BDA, Jung and MECcheck do not expressly teach project items having the lowest cost as claimed.

Bosch teaches identifying (selecting, presenting, recommending) a set of cost-effective (lowest cost) project items, in an analogous art of construction/building material selection/analysis, based on the iteratively analysis/trade-off analysis of a plurality of project values including but not limited to R values (R = 1/U) for the purposes of assisting designers in selecting the most cost effective and appropriate project designs (set of items; Page 23, Columns 1-2; Page 24, Column 1; Figure 1).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items utilizing a plurality of project item values including but not limited to UA values that meet a plurality of performance criteria including but not limited to cost as taught by the combination of BDA, Jung and MECcheck would have benefited from selecting and presenting (recommending, identifying, etc.) project elements having the lowest cost (i.e. most cost-effective) in view of the teachings of Bosch; the resultant system enabling designers (architects, building

decision-makers) to select the most appropriate (i.e. meet project criteria) and cost effective project items (Bosch: Page 23, Column 2, Paragraphs 1-2).

20. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Building Design Advisor (BDA) software product (computer-implemented method and system) developed by Lawrence Berkeley National Laboratory University of California, Berkeley features, capabilities and/or *characteristics inherent* in the BDA software product being disclosed in at least the following:

I. Papamichael K. et al., Building Design Advisor: automated integration of multiple simulation tools (1997), herein after reference A;

II. Papamichael, K. et al., Product modeling for computer-aided decision making (1999), herein after reference B; and

III. Papamichael K., Application of information technologies in building design decisions (1999), herein after reference C;

in view of MECcheck Software User's Guide Version 3.0 (April 2000, MECcheck) in view of Jung, Pyoung-Young, U.S. Patent No. No. 6,996,503 as applied to claims 1-3 and 27-28 above and further in view of Wares, U.S. Patent Publication No. 2001/0044768.

Regarding Claim 29 BDA does not expressly teach displaying information on suppliers based on the bill of materials as claimed.

Jung teaches generating a bill-of-materials based on project information provided in a CAD file as well as making the bill-of-materials available to a plurality of users

including but not limited to material providers (vendors, suppliers, etc.) as discussed above.

MECCheck and Jung do not expressly teach displaying information on suppliers based on the bill of materials as claimed.

Wares teaches displaying supplier information based on bill-of-material (project take-off) information in an analogous art of construction project management for the purposes of receiving bids from suppliers (contractors, manufacturers, vendors, etc.) to provide the products/service necessary to complete a construction project (Abstract; Paragraphs 0006-0007; Claim 5).

More generally Wares teaches a construction marketplace (portal) for the AEC (architecture, engineering and construction) industry wherein the system supports the complete AEC project lifecycle and provides project management and item/component (services, products, etc.) procurement capabilities (Abstract, Paragraphs 0006-0007).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items within project criteria and generating a bill-of-materials as taught by the combination of BDA, MEC and Jung would have benefited from displaying a list of suppliers based on the generated bill-of-materials in view of the teachings of Wares; the resultant system enabling users to

receive bids from suppliers to provide the project items identified on the bill-of-materials (project take-off; Wares: Abstract; Claim 5).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Isherwood, John, U.S. Patent No. 5,918,219, teaches a system and method for generating/determining and displaying project schedules and costs based on entered project information and project take-off analysis.

- Finney, Samuel, U.S. Patent NO. 6,324,508, teaches a system and method for performing automatic take-off analysis/estimates of construction projects/structures.

- Duenke, Dennis, U.S. Patent Publication No. 2002/0026343, teaches a system and method for estimating labor, installation and construction costs for projects.

- Zmeureanu et al., Maximum Glazing Area of new office buildings in Montreal (1992) teaches determining *glazing area percentages* of structures/projects.

- Papamichael et al., The Building Advisor (1996) teaches a computer-implemented system and method for selecting project items within criteria.

- Sacks et al., A project model for automated building system (1997) teach a system and method (computer-implemented) for automatically generating project information and documents for the design and construction planning of building projects.

- Michelena et al., A System Partitioning and Optimization Approach to Target Cascading (1999) teach a system and method for iteratively "designing" a project to meet successive/iterative design targets.

- Fuller et al., Life-cycle costing workshop for energy conservation in buildings (2000) teaches a system and method for selection the lowest cost items for a project within project criteria.

- Window 4.1 A PC Program for Analyzing Window Thermal Performance (1994) teaches a system and method for selecting items (windows) within project criteria.

- User's Guide to the Building Design Advisor (2001) teaches a system and method for selecting items for a project within project criteria.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott L. Jarrett whose telephone number is (571) 272-7033. The examiner can normally be reached on Monday-Friday, 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hafiz Tariq can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

6/29/2006

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